

Aug. 23, 1927.

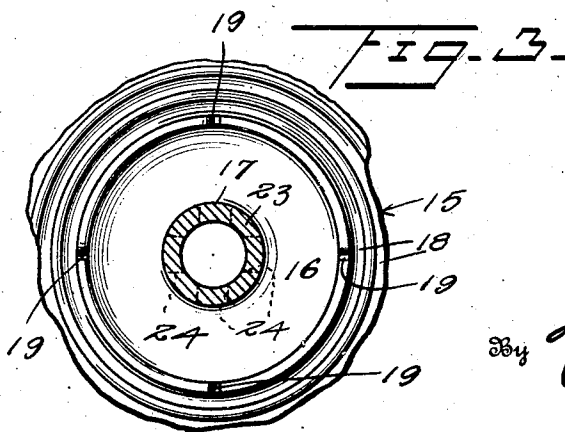
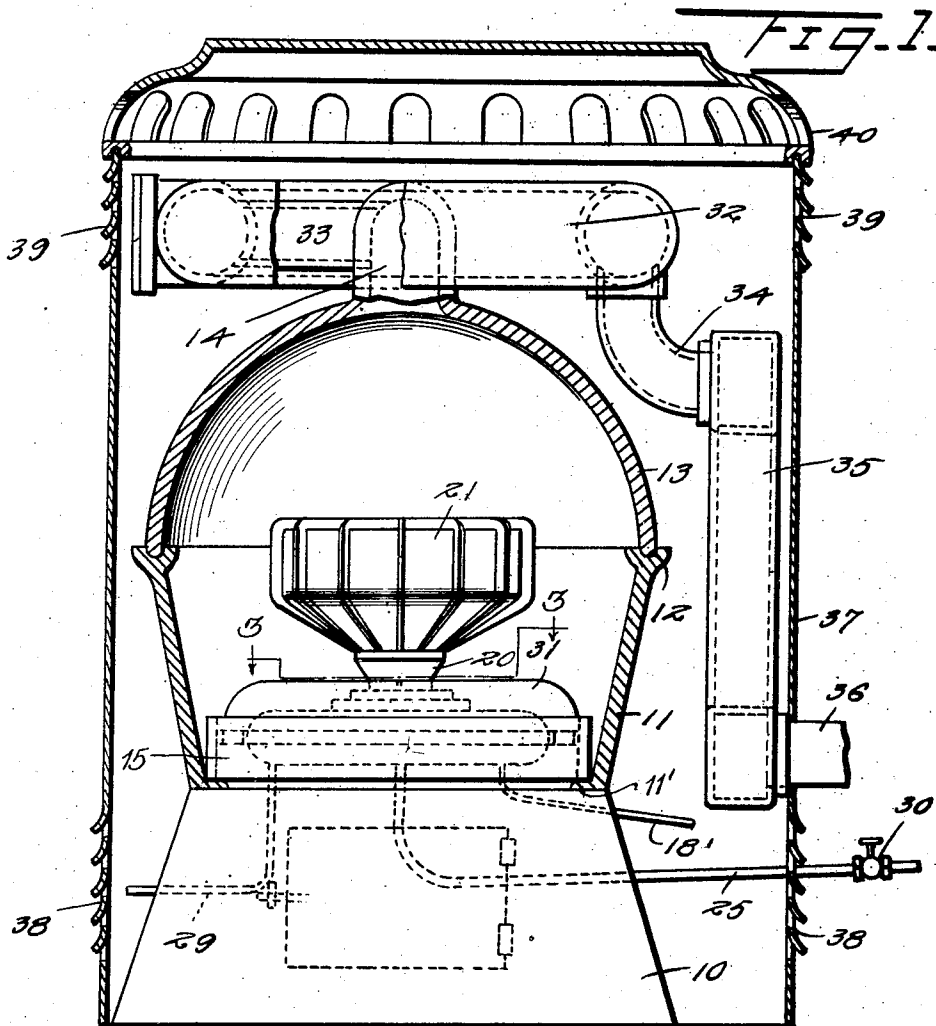
O. J. KIRCHEN

1,640,241

OIL HEATER

Filed July 27, 1926

2 Sheets-Sheet 1



Inventor

O. J. Kirchen
Grace C. Huddle

डेप्टी

Attorney

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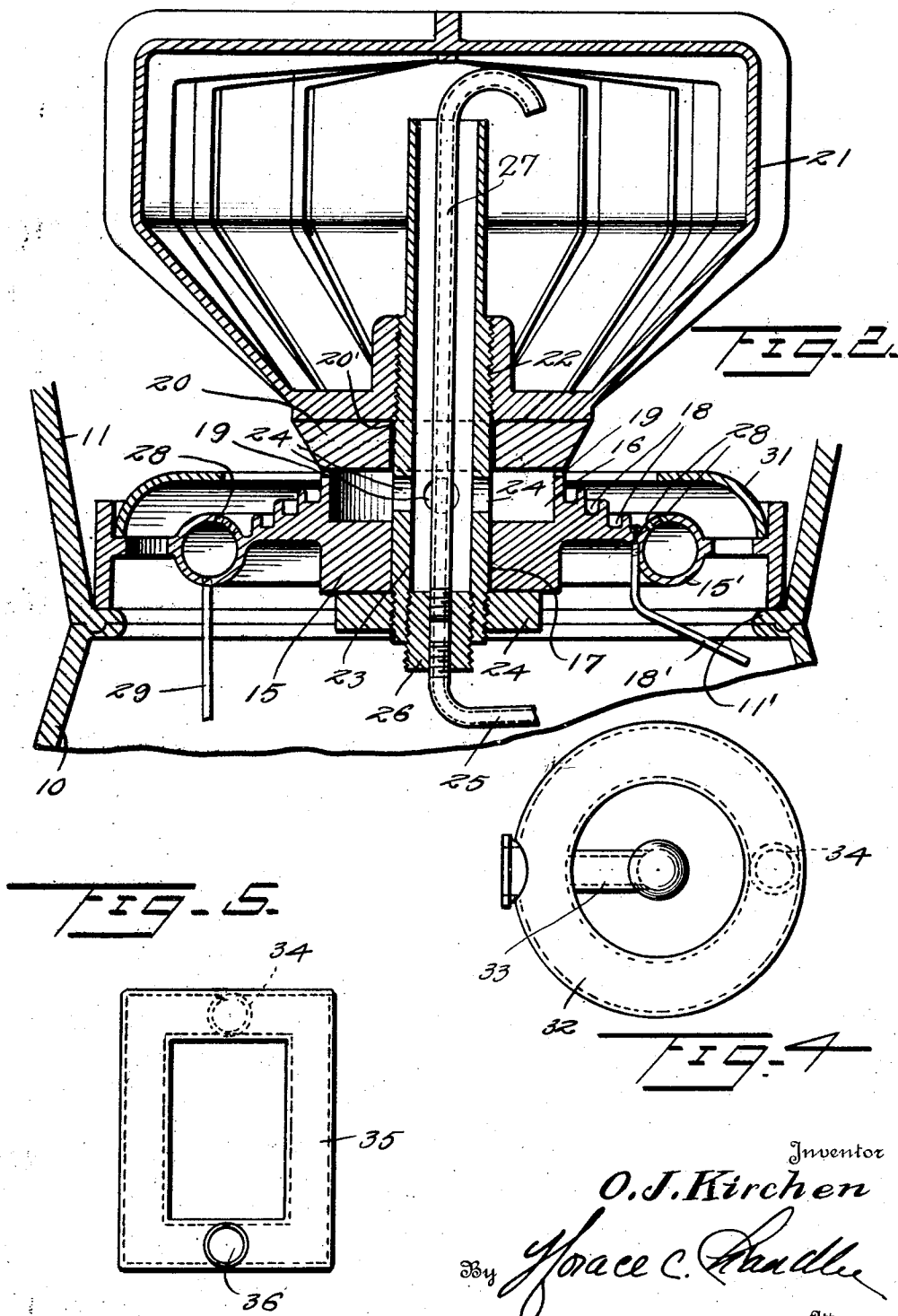
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O. J. KIRCHEN

OIL HEATER

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2 Sheets-Sheet 2



Inventor
O. J. Kirchen
By *Grace C. Huddle*
Attorney

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1,640,241

UNITED STATES PATENT OFFICE.

OTTO J. KIRCHEN, OF LANSING, MICHIGAN.

OIL HEATER.

Application filed July 27, 1926. Serial No. 125,293.

This invention relates to new and useful improvements in heaters, and particularly to heaters which use liquid fuel.

One object of the invention is to provide a heater of the type which is adapted to heat a single room, and wherein liquid fuel is burned with the maximum heat but with the expenditure of the minimum amount of fuel.

Another object is to provide a device of this character which is simple in construction, durable and effective in its operation, and which can be manufactured at a low cost.

Another object is to provide a device of this character wherein the vaporizing chamber and the gas flame are so located with respect to each other that the maximum of heat from the flame is directed against the walls of the chamber, with the result that the liquid fuel is more quickly vaporized, in said chamber, and the use of the fuel for starting reduced to a minimum.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawings.

In the drawings:

Figure 1 is an elevation of the device, partly in section.

Figure 2 is an enlarged vertical sectional view of the burner.

Figure 3 is a horizontal sectional view on the line 3—3 of Figure 1.

Figure 4 is a top plan view of the heat ring.

Figure 5 is a detail view of the rectangular radiator.

Referring particularly to the accompanying drawings, 10 represents the base of the oil burning device, on which is supported the upwardly flaring fire-pot wall 11. The upper edge of the wall is formed with a groove 12, in which is seated the lower edge of the dome-shaped cover 13, said dome having a vertically extending outlet 14 in its crest. The combination of the wall 11 and the dome 13 forms a combustion chamber. The wall 11 is formed with an inwardly extending flange 11', on its lower portion, and supported on this flange is the peripheral edge portion of the casting 15. The intermediate portion of the casting is of greater thickness than the remainder, and in the upper face of this central portion there is formed a recess 16, and formed vertically

through the center of the casting is an opening 17. Also formed in the upper face of the casting, outwardly of the recess, and in concentric relation thereto, are the downwardly stepped circular grooves 18, communication between the recess and uppermost groove being established by means of the transverse notches 19, formed in the upper edge of the surrounding wall of said recess. Seated on the said wall of the recess is a block 20, and resting on the upper face of said block is the lower face of the downwardly tapering vaporizing chamber 21. This chamber is closed except for a threaded opening 22, in its bottom, said opening registering with an opening 20', in said block 20, and the opening 17 in the center of the casting to receive the vertical tube 23, said tube being screwed into the opening 22, as clearly seen in Figure 2, of the drawings. The lower end of the tube 23 projects below the lower face of the casting 15, and is both internally and externally threaded. A nut 24 is engaged on the external threads, and serves to bring the casting 15, the block 20, and the chamber 21 into firm contact with each other. In the sides of the tube 23, within the recess 16, are the openings 24 which establish direct communication between the tube and the recess. The upper portion of the tube 23 is disposed adjacent the top wall of the combustion chamber, so that oil which is discharged into the chamber may overflow into said tube and escape to the recess 16, from whence it flows through the notches 19 into the circular grooves 18. The oil which flows into the grooves 18 is adapted to be ignited to produce a flame which will contact with the walls of the chamber 21, for the purpose of heating the chamber to such a temperature that the oil therein will vaporize and flow out through the tube 23, to the recess 16, and burn at the outer ends of the notches 19, to provide a permanent flame for retaining the chamber at a vaporizing temperature. The oil is conveyed to the chamber 21, from an elevated tank (not shown), by means of the pipes 25 and 27, the former of which is screwed into the lower end of a centrally apertured plug 26, which is screwed into the lower end of the tube 23, while the latter is screwed into the upper end of this plug and extends upwardly within the tube 23, and beyond the upper end of said tube where it is bent laterally and downwardly to de-

liver the oil into the chamber. Leading downwardly from the lowermost of the grooves 18 is a drain or overflow pipe 18', which carries off the excess of oil from the grooves. The inner portion of the casting 15 is in the form of a hollow ring 15', and in the upper portion of the ring are formed the openings 28, and connected to the lower side of the ring is a pipe 29, through which ordinary illuminating gas may be conveyed to the interior of the ring, for burning at said openings 28, whereby to provide a flame for initially heating the vaporizing chamber 21, when it is not desired to use the oil. In this event the operator stops the flow of the oil into the chamber, when the level of such oil rises to a point below the upper end of the tube 23. When the gas from the vaporized oil begins to flow from the notches 19, and burns thereat, the operator cuts off the illuminating gas. Disposed on the casting 15 is a centrally apertured baffle plate 31, which directs the rising air toward the notches 19, whereby to aid in the combustion of the gas or oil.

Disposed above the dome 13 is a horizontally arranged circular hollow heat radiating ring 32, a connecting pipe 33 joining the inner wall thereof with the said outlet 14, of the dome. Connected to the lower side of the ring 32, at a point opposite to that of the pipe 33, is an outlet pipe 34, said outlet pipe 34 being connected with the

upper portion of a hollow rectangular radiator 35, a smoke pipe 36 leading from the lower end of the radiator to a stack or chimney, not shown.

Enclosing the elements hereinbefore described is an outer shell or casing 37, which has the air inlet openings 38 in the lower portion of its walls, and the hot air outlet openings 39 adjacent the upper ends of the walls. A suitable cover 40 is removably secured on the upper end of the casing.

The bottom portion of the vaporizing chamber includes a removable block 20 which serves to increase the thickness of the bottom whereby to more effectively protect the chamber from burning out.

What is claimed is:

The combination with a heat generating chamber having an outlet in its upper end, of a horizontal radiator having a continuous passage therearound, a pipe connected to the inner face of one side portion of the radiator and to the said outlet, a vertical radiator having a continuous passage therearound, a pipe connecting the upper end of the vertical radiator with the horizontal radiator at a point remote from the first-named pipe, and a smoke pipe leading from the lower end of the vertical radiator.

In testimony whereof, I affix my signature.

OTTO J. KIRCHEN.